

A2.A.42: Compositions of Functions 1: Find the composition of functions

- 1 If $f(x) = \frac{1}{2}x - 3$ and $g(x) = 2x + 5$, what is the value of $(g \circ f)(4)$?
 - 1) -13
 - 2) 3.5
 - 3) 3
 - 4) 6
- 2 If $f(x) = 5x^2$ and $g(x) = \sqrt{2x}$, what is the value of $(f \circ g)(8)$?
 - 1) $8\sqrt{10}$
 - 2) 16
 - 3) 80
 - 4) $1,280$
- 3 If $f(x) = -2x + 7$ and $g(x) = x^2 - 2$, then $f(g(3))$ is equal to
 - 1) -7
 - 2) -3
 - 3) -1
 - 4) 7
- 4 The temperature generated by an electrical circuit is represented by $t = f(m) = 0.3m^2$, where m is the number of moving parts. The resistance of the same circuit is represented by $r = g(t) = 150 + 5t$, where t is the temperature. What is the resistance in a circuit that has four moving parts?
 - 1) 51
 - 2) 156
 - 3) 174
 - 4) $8,670$
- 5 If $f(x) = x^2 + 4$ and $g(x) = \sqrt{1-x}$, what is the value of $f(g(-3))$?
 - 1) $2i\sqrt{3}$
 - 2) 2
 - 3) 8
 - 4) 13
- 6 If $g(x) = \sqrt{x}$ and $h(x) = x^3 - 1$, what is $g(h(4))$?
 - 1) 5
 - 2) 7
 - 3) $\sqrt{11}$
 - 4) $\sqrt{63}$
- 7 If $f(x) = x - 3$ and $g(x) = x^3$, find $f(g(3))$.
 - 1) 0
 - 2) 6
 - 3) 24
 - 4) 30
- 8 If $f(x) = 3x^2$ and $g(x) = \sqrt{2x}$, what is the value of $(f \circ g)(8)$?
 - 1) $8\sqrt{6}$
 - 2) 16
 - 3) 48
 - 4) 144

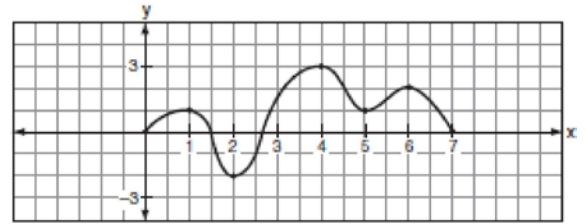
- 9 If $f(x) = x + 1$ and $g(x) = x^2 - 1$, the expression $(g \circ f)(x)$ equals 0 when x is equal to

1) 1 and -1
2) 0, only
3) -2 , only
4) 0 and -2

- 10 If $f(x) = 2x^2 + 4$ and $g(x) = x - 3$, which number satisfies $f(x) = (f \circ g)(x)$?

1) $\frac{3}{2}$
2) $\frac{3}{4}$
3) 5
4) 4

- 12 The accompanying graph is a sketch of the function $y = f(x)$ over the interval $0 \leq x \leq 7$.



What is the value of $(f \circ f)(6)$?

1) 1
2) 2
3) 0
4) -2

- 11 The accompanying tables define functions f and g .

x	1	2	3	4	5
$f(x)$	3	4	5	6	7

x	3	4	5	6	7
$g(x)$	4	6	8	10	12

What is $(g \circ f)(3)$?

1) 6
2) 2
3) 8
4) 4

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Answer Section

1	ANS: 3	PTS: 2	REF: fall0902a2
2	ANS: 3	PTS: 2	REF: 010207b
3	ANS: 1	PTS: 2	REF: 010501b
4	ANS: 3	PTS: 2	REF: 060605b
5	ANS: 3	PTS: 2	REF: 060806b
6	ANS: 4	PTS: 2	REF: 069423siii
7	ANS: 3	PTS: 2	REF: 019820siii
8	ANS: 3	PTS: 2	REF: 069915siii
9	ANS: 4	PTS: 2	REF: 060417b
10	ANS: 1	PTS: 2	REF: 060210b
11	ANS: 3	PTS: 2	REF: 010812b
12	ANS: 4	PTS: 2	REF: 080520b